ENGELMANN (G. J.)

Thinness of the Uterine Wall during Gestation Simulating Extra-uterine Fœtation.

BY

GEORGE J. ENGELMANN, M.D.,

ST. LOUIS, MO.

REPRINTED FROM TRANSACTIONS,
1891.

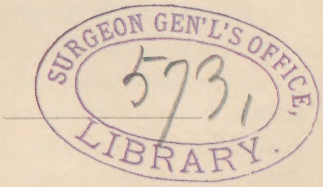
THINNESS OF THE UTERINE WALL DURING GESTATION

SIMULATING EXTRA-UTERINE FŒTATION.

BY

GEORGE J. ENGELMANN, M.D.,

PROFESSOR OF DISEASES OF WOMEN, MISSOURI MEDICAL COLLEGE AND POST-GRADUATE SCHOOL OF MEDICINE; LATE PRESIDENT SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION; LATE PRESIDENT ST. LOUIS OBSTETRICAL AND GYNECOLOGICAL SOCIETY; FELLOW AMERICAN GYNECOLOGICAL SOCIETY, BRITISH GYNECOLOGICAL SOCIETY, ETC.



PHILADELPHIA:
WM. J. DORNAN, PRINTER.
1892.

THINNESS OF THE UTERINE WALL DURING PREGNANCY, SIMULATING EXTRA-UTERINE FŒTATION.

By George J. Engelmann, M.D.,
St. Louis, Mo.

Attenuation and relaxation of the uterine wall, either symmetrically, of the entire organ, or of a part only, as a physiological phase in the development of the organ during pregnancy, has received little or no attention from the obstetrician, and indeed seems of little practical import to him, unless it continue and result in a weakness of the expulsive efforts. The incisive progress of pelvic and abdominal surgery has called our attention to the existence of this condition and the importance of the very peculiar appearances assumed by such cases, by reason of their close simulation of pregnancy extra-uterine.

As the obstetrician dwells upon conditions which simulate normal intra-uterine pregnancy, the pelvic surgeon must now define those, far more dangerous, which resemble extra-uterine pregnancy; and one of the most misleading is ordinary pregnancy with a thinning of the uterine wall, more especially so when complicated, as it frequently is, by displacement and adhesion, by ante- or retroflexion, with lateral deviation of the fundus. These cases, the result of conception in a uterus weakened and displaced as a consequence of chronic disease, though rare in their extreme form, are not altogether infrequent. Yet they are mentioned for the first time as of diagnostic import by Parry. More fully recognized by the observant eye of Tait, they are briefly described in

his work; then both Lusk and Coe have pointed to them in warning, lest the eager and inexperienced operator be misled by the very peculiar appearances thus presented.

This thinness of the wall of the pregnant uterus is of importance to the surgeon, and appears most striking between the fourth and seventh months of pregnancy. The condition is one not of attenuation, strictly speaking, but of imperfect development of the muscular tissue of the uterus; that is, the growth and development of the uterine wall does not keep pace with the development of the ovum, and as the latter enlarges, it distends and so attenuates the surrounding muscle; hence a marked and deceptive thinning cannot take place until a sufficient distention has occurred by enlargement of the ovum, which is hardly possible before the fourth month of pregnancy. The rapidly growing ovum then stretches the uterine wall as it would a casing of rubber, and as this remains itself inactive, and is not strengthened and thickened, the tissue becomes more attenuated as the ovum enlarges with advancing pregnancy. This attenuation becomes extreme in the sixth or seventh month, at which time—certainly in the eighth—the dormant functions are usually aroused, the weak and limp muscle grows and develops sufficiently to serve its purpose in every sense, to form a firm casing for the ovum, with power sufficient to force it through the natural passages at term.

This thinness of the uterine wall is of diagnostic import, by reason of the dangerous condition which it simulates, between the fourth and seventh months: no striking diagnostic difficulties present until toward the fourth month, when the pregnant uterus, under these conditions, may appear as a thin-walled sac partially filled with fluid, whilst in the later months, especially if the amniotic fluid be scant, as often is the case, all trace of the surrounding sac disappears, and the fœtus will be felt as if free within the abdominal cavity. After the seventh month, with a gradual thickening and strengthening of the uterine muscle, and its increased tone, the organ becomes more and more distinct, and with the accom-

panying increase in the quantity of amniotic fluid it gradually assumes its wonted shape and form, and the obstetrician, interested only in the termination, attends a normal labor, unconscious of the preëxistence of unusual conditions.

Such attenuation of the uterine wall, due to retarded development, may be either (*a*) total and complete or (*b*) partial.

(*a*) *Total* or *complete attenuation* is a symmetrical thinning from fundus to cervix, an excellent example of which is the case described by Mr. Tait, page 498 of his book: "With marked absence of the liquor amnii, so that the movements of the child could be seen and felt in the most striking manner. In the pelvis the finger came upon the presenting part of the fœtus, as if it lay immediately under the mucous membrane, and it was only by very careful investigation that the attenuated cervix could be made out, spread over the body of the child." The case, seen in this condition earlier than the seventh month, terminated in proper time in a natural labor. This retarded development, which results in a thinning of the entire tissue of the uterus, is due to imperfect innervation, and as a rule, malnutrition of the system, as well as weakness and malnutrition of the pelvic viscera. It is more likely to occur in cases of debility, local and general, unaccompanied by chronic disease of the uterine and peri-uterine tissue; it may be due to weakening of the organ from numerous labors in rapid succession.

(*b*) *Partial attenuation* is more likely to occur, certainly more likely to be observed, when conception takes place in a diseased and flexed uterus, the resemblance to extra-uterine pregnancy being made so much more striking when lateral flexion, with adhesions near the angle, complicates the case. The growing ovum distends that part of the fundus above the point of flexion and fixation, and it is thus that the most deceptive appearances are presented. The indurated organ below the point of flexion remains long unchanged, as that part of the uterine canal is not encroached upon by the ovum, which stretches out the portion of the fundus above, lying to the side, ante-

riorly or posteriorly, and so presenting the appearance of a very flabby sac, in the precise position in which we would seek the mass of an extra-uterine fœtation. This is in the beginning of the deceptive period, during the fourth and the early part of the fifth month. Later, in the sixth and seventh months, all evidence of a sac completely disappears, and the fœtus is the striking feature, apparently every detail of which can be clearly felt through the mucous membrane of the vagina or the attenuated abdominal walls, with no evidence of any surrounding tissue. Two cases of partial attenuation, which have attracted my attention to the subject, I will now describe more in detail—Case I. being under observation in the period of change and later, in the fifth and sixth months; Case II. showing the condition of affairs in the earlier period.

Case I.—Mrs. J. C. came under observation June 29, 1889, seeking relief from a variety of annoying and depressing symptoms, which had slowly developed in the past three months, and were now beginning to cause her alarm as well as distress. This patient, thirty-two years of age, had borne three children and suffered one miscarriage in the six and one-half years of her married life. The youngest, a baby twenty months old, she was still nursing.

She had complained more or less for the past three months of sick headaches, fulness and belching after meals, occasional vomiting spells, but above all, of a daily recurring swelling of the abdomen, preceded by pain in the groin, and three weeks ago she observed the rapid enlargement of the abdomen and the appearance of a tumor low down, somewhat more in the right side. Menstruation had not recurred since the last labor, but all possibility of pregnancy was excluded by the patient, more particularly as she was still nursing her baby.

Examination revealed marked varicosity of the veins upon the lower extremities, a protrusion of the congested vaginal tissue, a cystocele of the size of a goose-egg, covered with varicose veins of the thickness of a lead-pencil, and, like the tissues about the urethral orifice, showing a bluish discoloration, indicative of

venous congestion and certainly suggestive of pregnancy. The most interesting feature was a non-elastic tumor behind the symphysis and a little to the right, which formed into a hard, round ball under the touch of the examining hand, again to disappear, coming and going as the irritant was applied. When tense and round, its surface was covered by thick, winding cords, unquestionably the same large varicose veins which were found upon the cystocele. The cervix uteri was low, large, and near the vulvar orifice, its lips everted, raw, and granular, the surface soft. By bimanual examination the rather hard and thickened uterine neck could be traced distinctly toward the body of the organ, which was very low in the pelvis, thickened and elongated, closely approximating to, but not distinctly connected with, the superimposed tumor, which had some little mobility independent of that of the cervix. For the examination of the cavity the pliable, cotton-wrapped, applicator, saturated in a ten per cent. carbolic acid solution, was used, entering to the depth of 8 cm., with a slight anterior curve in the fundus.

The *diagnosis* at the time was that of a tumor connected with the anterior wall of the uterus, or superimposed upon that organ, the walls of the tumor evidently containing muscular fibre. Normal pregnancy, the possibility of which was denied by the patient, was excluded, notwithstanding the very suspicious discoloration about the urethra, the cystocele, and the cervix; it was excluded on account of the distinctness with which the uterus—more correctly speaking, that part of the organ, the neck and lower part of the body, which could be reached and felt like a subinvoluted uterus—could be outlined, and of the revelations of the sound, which seemed to show a cavity such as we might expect in that subinvoluted organ, its course indicative of the position of the uterus underneath the tumor; the discoloration, although approximating that peculiar tint of pregnancy, was supposed to be due to the impediments in the circulation caused by the pressure of the superimposed tumor, to which likewise was ascribed the congestion of the enlarged uterus. The presence of a muco-purulent discharge, moreover, pointed to the existence of an endometritis, as we might expect it in an organ in this state. The drop of glairy mucus, ascribed to the pregnant uterus, was wanting. (Had the applicator been used more

boldly, the cavity could have been traced into the supposed tumor, and bimanual examination under an anæsthetic would have revealed the connection between tumor and uterus).

Constitutional treatment was ordered, tonics and nervines were given, digestion was regulated; mild astringent applications—ten per cent. perchloride of iron—were made to the uterine cavity and astringent tampons placed, to stimulate and strengthen the vaginal tissues.

July 13th I was surprised by a complete change in the aspect of the case; the tumor had entirely disappeared, and directly over the symphysis the parts of a child were detected; breech, knees, and feet could be felt, both through the vagina and through the abdominal walls, as distinctly as through a wet towel, as if nothing but the vaginal tissue or the attenuated abdominal walls had been interposed. The condition, as well as the position, of neck and lower segment, which appeared as the uterus, remained the same; neck and body, like that of a moderately large subinvoluted uterus, could be felt as far as the finger could reach; the sound, passed to the depth of 15 cm. toward the sacrum, curving forward at the end, as if in an anteflexion, with a slight right latero-flexion of the fundus.

The diagnosis now seemed clearly that of an abdominal pregnancy resulting from a right tubal pregnancy; rupture, or at least a decided change in the position of the fœtus, having occurred five weeks ago, when that sudden enlargement of the abdomen was noticed, and the tumor passed from the right side more toward the centre.

The possibility of normal intra-uterine pregnancy did not occur to any of those examining the case, as neck and part of the uterine body could be felt (as was supposed), and the fœtus could be moved about with the utmost freedom without disturbing the supposed uterus, the parts being felt with a marvellous distinctness—in fact, as distinctly "as if felt through a wet towel." Of the various local symptoms noted as more or less characteristic of extra-uterine pregnancy in the later months, none existed, unless it be the dragging and the pain in the groin.

The usual precautions were now adopted; great care was urged and all arrangements made for operation upon the appearance of threatening symptoms. Emboldened by the harmlessness of pre-

vious examination and intra-uterine treatment, the applicator was used, with undue force perhaps, to the depth of 16 cm. for the purpose of fully exploring the uterine cavity; and, as a result, uterine contractions were inaugurated; my assistant, summoned at once, as directed upon any change in the patient's condition, found, in place of a fœtus floating freely about in the abdominal cavity, a well-defined uterine globe, vigorously contracting, which expelled a well-developed six months' child without undue delay.

CASE II.[1]—Mrs. H., seen by me in October, 1889, in consultation with some of our most eminent specialists and practitioners. The patient, anæmic, weak, and nervous, had been a sufferer from uterine irregularities and recurring exacerbations of pelvic inflammation. She was in a state of extreme physical prostration and nervous irritability, suffering from weakness and derangement throughout the entire system, unable to take food, nauseated, the stomach, like all other organs, in a state of excessive hyperæsthesia, the most annoying symptoms being gaseous distention and disturbance of the abdomen, constipation, and painful micturition—all conditions which had assumed more marked proportions in the last three months. The menstrual function was correspondingly disturbed; the last three periods had been indicated only by intense suffering, with no sanguineous discharge since the very faint show three months previous. The distressing and intractable conditions, which had proven equally annoying to the patient and her attendants, had of late been complicated by the discovery of a peculiar cystic enlargement in the lower portion of the abdomen.

Examination, before the administration of an anæsthetic, did not prove very satisfactory, on account of the pelvic tenderness existing, notwithstanding the emaciation of the patient and the extreme thinness of the abdominal walls. The cervix and lower portion of the body appeared, upon examination without anæsthesia, as the entire organ, as an indurated, anteflexed, very little enlarged uterus, pushed toward the sacrum by the overlying tumor, with which it seemed but indistinctly connected. This

[1] Since reading this paper the case has been more fully described in the American Gynecological Journal, January, 1892, p. 18, by Dr. E. C. Gehrung, the attending gynecologist, to whom I am indebted for the previous history.

tumor was a peculiar one, not like any one of the typical neoplasms, but, as it was well described to me by the attending physician, more like a thin-walled bladder partially filled with urine; it was somewhat movable, with its base and attachment apparently in the left side—in the left ovarian region—extending behind the symphysis anterior to the uterus and over toward the right side.

After the administration of an anæsthetic the tumor could be fully outlined and its connection with the anteflexed uterus more distinctly traced, the fundus being thereby apparently drawn toward the left side. The picture presented was that of a slightly enlarged, infiltrated, anteflexed uterus, the fundus turning to the left and terminating some two inches from the vaginal insertion, in a flabby sac.

In the light of the facts presented, and a similar case recently observed, it appeared probable that this sac was the impregnated uterine fundus, and its direct connection with that body, and its cavity was proven by the careful introduction of a very pliable applicator, well wrapped with cotton and steeped in an antiseptic solution. This applicator revealed the anteflexion, then turning toward the left side it traced the cavity of the tumor toward the right as it lay transversely behind the symphysis. The very faintest tint of color was noted in the cul-de-sac amid the pallor of the surrounding tissues. The mucous covering of the hard cervix was somewhat softened, the breasts were flabby, neither enlarged nor discolored; the fœtal heart could not be heard.

The diagnosis was that of pregnancy, and the patient was advised accordingly. Some reaction being feared as a result of the examination, perfect quiet in bed was ordered and opiates administered. No unfavorable symptoms whatever followed, her condition improved by the careful management of her painstaking attendant, the uterine muscle developed in later months, and she was delivered of a healthy child at term, although the labor was an exceedingly trying one, as might have been expected in this nervous, anæmic patient afflicted with pelvic disease.

The prominent features of this case were the prostration, with distressing gastro-intestinal and vesical symptoms and intense hyperæsthesia, with paroxysmal pains in the left side

of the pelvis. The pelvic tumor was unusual and peculiar in history, symptoms, and appearance; fever had been absent, and the feel of the tumor was certainly not that of an inflammatory enlargement. Pregnancy seemed out of the question; it was strenuously denied by the patient. All of the characteristic symptoms which had marked her previous pregnancy were wanting: the morning sickness, which had been typical before, did not exist; the breasts, tense and painful with a marked areola in her earlier pregnancy, were painless and flabby, as might have been expected in her reduced, anæmic condition, showing no change whatever; the menstrual function, which had always been extremely irregular, could afford no certain indication; an extremely profuse flow of long duration was followed by a very scant show during a single day, and no discharge at all during the next three periods, which, however, were marked by increased suffering, molimina readily explained by her anæmic, debilitated condition and the existence of chronic uterine and pelvic disease. The only indication of pregnancy seemed to be given by the very faint tint of color about the cervix; the cervix itself was hard, its mucous covering somewhat thickened and succulent; the lower portion of the uterus, which appeared as the anteflexed uterus itself, was such as might be expected in chronic metritis, and certainly did not show that softening, that compressibility with elasticity, so characteristic of the gravid uterus, especially in its inferior segment, at the isthmus, just above the cervix, where Hegar claims that this condition is invariably found, so that he looks upon it as an infallible sign of pregnancy. The history and appearances were rather those of extra-uterine fœtation, the molimina simulating expulsive efforts or the pains of a rupture.

Comparison of the Two Cases.

Appearance of the Tumor—the Impregnated Uterine Fundus.

Case I.	Case II.
In the fifth and sixth months of pregnancy, when first seen, contracting under the hand to a solid, round tumor, vanishing with irritant removed.	In the fourth month of pregnancy.
Tumor globular, behind the symphysis, somewhat to the right, covered by varicose veins.	The pelvic tumor an oblong, partially collapsed cyst, extending from the left ovarian region, behind the symphysis, toward the right side.
Three weeks later the tumor has entirely disappeared, and the parts of a five to six months' fœtus are felt with the utmost distinctness in the supra-pubic region through vaginal and abdominal walls; it is freely movable in the abdominal cavity, and no enclosing sac can be detected.	
The tumor over, somewhat to the right and anterior to, the apparent uterus.	The tumor to the left and anterior to the apparent uterus.

Appearance of Uterus and Evidence of Pregnancy.

Pregnancy denied.	Pregnancy denied.
Symptoms of previous pregnancies all absent.	Symptoms of previous pregnancies all absents.
No change in the breasts.	No change in the breasts.
Absence of menstruation accounted for by continued nursing; no molimina.	Absence of menstruation accounted for by patient's weakened condition and chronic pelvic disease, as indicated by increased menstrual irregularity and periodic suffering; excessive molimina.
That part which appeared as the uterus apparently uniformly enlarged, as might be expected in subinvolution; low in the pelvis, anteflexed; the feel that of an indurated and congested organ, not with the elastic compressibility of pregnancy; fundus anteflexed; sound enters 8 cm., later 16 cm.	The apparent uterus hard, very little enlarged, especially not thickened, anteflexed, fundus drawn to the left by contraction of the left broad ligament; the sound passes through what seemed the uterus to the end of the tumor, in a spiral.
Hegar's sign absent.	
The os uteri large, pouring forth a muco-purulent discharge.	The os uteri small.

Constitutional Debility and Weakness of Uterine Tissue.

Patient reduced and weakened by repeated pregnancies in rapid succession.

The uterine tissue in a morbid, inactive state, weakened by repeated pregnancy, by subinvolution, with hyperplasia and descensus uteri.

Patient naturally delicate, tissues relaxed, weakened by chronic pelvic inflammation.

The uterine tissue in a morbid, inactive state, weakened by endometritis, perimetritis and flexion.

The Peculiar Development caused by

Distention of the upper portion of the uterine body, of the fundus beyond the point of anteflexion.

The cervix and isthmus uteri, apparently the lower portion of the corpus, is not encroached upon by the ovum, and takes no part in the formation of the receptacle; hence this portion presents the appearance of a uterus, and the lax tissue at the point of flexion which does not enter into the formation of the sac forms a loose connection between it and the apparent uterus.

Partial distention of the uterine cavity by the growing ovum beyond the point of fixation and lateroflexion.

The cervix and isthmus uteri, apparently the lower portion of the corpus, is not encroached upon by the ovum, and takes no part in the formation of the receptacle; hence this portion presents the appearance of a uterus, and the thinned tissue at the point of flexion where the anteflexed fundus is dragged to the left forms the pedicle of the tumor, as it were, admitting of a certain independent mobility of the two parts.

Conclusions.—This attenuation of the uterine walls, by reason of their retarded development during pregnancy, assumes importance at the present day, on account of the close simulation of extra-uterine fœtation thus caused, more especially so as it is generally accompanied by a scantiness of the amniotic fluid.

Uniform or complete attenuation presents the deceptive appearance more especially in the later months, when the fœtus is felt with surprising distinctness, and freely movable within the abdominal cavity. The diagnosis is, however, readily made by defining the surrounding uterine wall when contracted by the cold hand or the electrical current, and by demonstrating the os uteri and the attenuated tissue of the cervix as a covering to the presenting part, and by the absence of the non-impregnated uterus.

Widely different is the state of the case in partial attenuation occurring in tissues changed and debilitated by chronic pelvic disease, so that the symptoms of pregnancy are masked as well. This is deceptive by reason of the apparently complete, unimpregnated uterus, either anterior or posterior to the tumor, and the fact that when complicated by latero-flexion, shortening of the broad ligament of one side, the tumor, always beyond the point of flexion, seems to originate in the tubo-ovarian region.

In the earlier part of the dangerous period, from the fourth to the seventh month, the appearance of a partially collapsed cyst is presented. In the later stages the fœtus can be felt, as in complete attenuation, through the thinned tissues, as if free within the abdominal cavity; still, the unchanged cervix and lower segment of the uterus represent the somewhat enlarged non-pregnant organ.

The diagnosis is readily made:

1. By causing contraction of the cyst-wall, or demonstrating its presence by the application of cold or electricity, after relaxation of the tissues by an anæsthetic.

2. By defining the continuity of the apparent sac and uterine body; and,

3. By the use of the applicator as a sound.

I assert that the delicate, pliable applicator, carefully wrapped with cotton steeped in a non-irritating antiseptic solution, can be used with safety for the examination of the cavity of the pregnant uterus, and that no ill results will follow a careful exploration at any time. A passage can, of course, not be forced, but where gentle pressure suffices, the instrument can be passed with safety. In skilled hands, even the metal sound can be used; but the pliable applicator, properly guarded, is a legitimate diagnostic instrument in questionable cases of pregnancy, and should unhesitatingly be resorted to.

Numerous cases have of late been reported in which the abdominal surgeon has been called upon to operate for extra-uterine pregnancy, and in which he found these peculiar con-

ditions; yet I am not cognizant of any case which has actually led to operation, although such cases may have occurred without being reported; one such, I believe, is recorded in which leading French obstetricians and surgeons were misled.

Deceptive as is the appearance presented by this attenuation of the uterine walls during pregnancy, it is, nevertheless, readily recognized by the careful examiner, and when once described and accepted, will be detected with equal certainty by every practitioner. The existence of this condition, and the possibility of its occurrence, recognized, the accompanying danger will be obviated, and the innocent sufferer will no longer be endangered by the threatening possibilities of laparotomy.